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A Systematic Review of the Efficacy of Alcohol Interventions for Incarcerated People

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ABSTRACT

AIM: The aim of this current study was to systematically review the literature on brief alcohol interventions for incarcerated individuals to ascertain the efficacy or effectiveness in making changes to either consumption of alcohol or other social outcomes.

INTRODUCTION: It has been shown that around three times as many incarcerated individuals are risky drinkers and alcohol dependency is ten times higher than in the general population.

METHODS: We conducted a systematic review of randomised controlled trials or matched group trials of the efficacy of psychosocial alcohol interventions for incarcerated individuals. We searched seven databases, with no restrictions on language, year, or locations from inception through to August 2017. The CASP tool was used to assess the quality of included studies. The TIDieR checklist was used to ascertain intervention descriptions.

RESULTS: Nine studies from 11 papers were included in the analysis. Six of the studies included brief intervention and three extended interventions. Every study used a different measure of alcohol consumption. Three of the studies that looked at brief interventions and all of the three extended intervention studies found significant reductions in relation to alcohol outcomes.

CONCLUSIONS: Results show that interventions in the prison setting have the potential to positively impact on alcohol use; however, because of small numbers and the use of different outcome measures we could not conduct a meta-analysis or generalise findings. We discuss

methodological considerations to carrying out research in this setting, including using different outcome measures as well as gaps in the literature.

SUMMARY

Levels of risky drinking and dependency are high amongst incarcerated individuals. Eleven studies from nine articles were included in the systematic review. Six of the studies included brief intervention and three extended interventions. Interventions have the potential to positively impact on risky drinking. More studies are needed in this setting.

INTRODUCTION

Alcohol substantially contributes to the global burden of disease and is responsible for 2.3 million premature deaths worldwide, many of which are preventable (Rehm et al., 2009). A recent survey showed that 70% of prisoners in the UK admitted drinking when committing the offence for which they were imprisoned (Alcohol and Crime Commission, 2014). Hazardous drinking is a repeated pattern of drinking that increases the risk of physical or psychological problems (Saunders and Lee, 2000), whereas harmful drinking is defined by the presence of these problems (World Health Organisation, 1992). Drinking at hazardous or harmful levels are often categorised as risky drinking.

There are approximately 10.35 million people imprisoned worldwide. The United States of America (USA) has 2.28 million and the United Kingdom (UK) 85,843 (Walmsley, 2015). Worldwide, the prison population is 144 per 100,000 people; in the USA this is 698 per 100,000 people compared to 148 per 100,000 in the UK (Walmsley, 2015). It has been shown that drinking norms in the criminal justice system differ widely from those in the general population (Newbury-Birch et al., 2016b). Risky drinking is higher in the criminal justice system than in the general population (Newbury-Birch et al., 2016b). However, it has been shown that risky drinking amongst incarcerated people differs across the world. A systematic review carried out by Newbury-Birch et al in 2016 found that between 51% and 83% of incarcerated people are classified as risky drinkers (Newbury-Birch et al., 2016b); in the USA risky drinking levels have been shown to be around 50% (Binswanger et al., 2009); and in Africa the rates are shown to be just over 50% (Muigai, 2014). Furthermore, rates of dependence among those who are incarcerated have been shown to be up to ten times higher than the general population (Newbury-Birch et al., 2016b). Although the relationship is

complex, there is well documented evidence of an association between alcohol use and crime (Boden et al., 2012), with a complex interplay between the amount drank, the pattern of drinking, and the individual and contextual factors (Graham et al., 2012).

Evidence tells us that intensive interventions that target high-risk offenders work best for reducing recidivism (Andrews and Bonta, 2010) and this is where resources are being placed. However, services are currently advocating the use of brief interventions in the criminal justice system (Newbury-Birch et al., 2016b). Brief interventions have been shown to be effective in primary health care (O'Donnell et al., 2014). They are typically applied to opportunistic, non-treatment seeking populations, delivered by practitioners other than addiction specialists (Miller and Rollnick, 2002). They are not simply traditional psychotherapy delivered in a short duration of time (Miller and Rollnick, 2002). Brief intervention largely consists of two different approaches (National Institute for Clinical and Health Excellence, 2010): simple structured advice which, following screening, seeks to raise awareness through the provision of personalised feedback and advice on practical steps to reduce drinking behavior and its adverse consequences; and extended brief intervention, which generally involves behaviour change counselling. Extended brief intervention introduces and evokes change by giving the patient the opportunity to explore their alcohol use as well as their motivations and strategies for change. Both forms share the common aim of helping people to change drinking behavior to promote health, but they vary in the precise means by which this is achieved. There is a wide variation in the duration and frequency of brief alcohol interventions, but typically they are delivered in a single session or a series of related sessions lasting between five and 60 minutes and can be implemented by a range of practitioners in a wide variety of settings (Kaner et al., 2007). To date there is a lack of evidence relating to the

use of brief interventions in the criminal justice system in general, and in the prison system in particular (Newbury-Birch et al., 2016b).

Intervening to reduce alcohol use has been shown to be cost-effective, generating both long- and short-term savings (UKATT Research Team, 2005). Therefore, given the high levels of risky drinking, the links between alcohol and crime, and the costs to society, it is important to find effective interventions that not only reduce alcohol consumption but also potentially recidivism. Interventions carried out within the criminal justice system could potentially capitalise upon the “teachable moment” considered to be conducive of behaviour change, wherein individuals can be encouraged to consider their alcohol use within the context of their offending behaviour and its punitive consequences (Babor and Grant, 1989).

The aim of this current study was to systematically review the literature on brief alcohol interventions for incarcerated individuals to ascertain the efficacy or effectiveness in making changes to either consumption of alcohol or other social outcomes.

METHODS

Search strategy and selection criteria

We carried out a systematic review of the international literature, following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines on reporting of systematic reviews (Moher et al., 2009). The systematic review protocol was registered on the PROSPERO Register at the University of York (CRD42016039895). We included Randomised Controlled Trials (RCTs) or matched group trials. As well as examining the efficacy/effectiveness of alcohol interventions, the current review adds to other reviews in

the criminal justice setting (Graham et al., 2012, Newbury-Birch et al., 2016b) by including evidence around the timing of screening and interventions within the offender journey and information about the type and nature of the interventions themselves.

We included studies with control groups comprising: treatment as usual; information-only; assessment only; no assessment; or another intervention. Studies eligible for this review were peer-reviewed trials of any alcohol interventions carried out in the jail/prison setting (including remand). We included interventions that were categorised as brief interventions as well as extended longer alcohol psychosocial interventions (extended brief interventions). We included individuals aged 16 years or over and any outcome measure. We excluded studies that included a drug and alcohol intervention where alcohol information could not be isolated.

We searched: MEDLINE; PsychINFO; Web of Science; Cochrane Library; EBSCO; CINAHL; and the Campbell Collaboration Library. We included all dates in the search. The search was conducted in August 2017. Citations were scanned and we contacted experts in the field to minimise selection bias. The search terms used were: ‘alcohol OR alcoholism OR alcohol abuse OR alcohol misuse OR binge drinking’ AND ‘crim* OR prison* OR offend* OR correctional OR penitentiary OR incarcerated OR remand’ AND ‘randomised controlled trials OR randomise OR control OR trial OR random* OR quazi* OR quasi* OR matched’ with Boolean/phrase searches. Searches were tailored to the search functionality of each database. We also searched grey literature including google scholar and did a 360° citation check of included papers.

All authors were involved in the data sifting. Two reviewers on the team conducted eligibility assessments of titles and abstracts independently. Disagreements between reviewers were resolved by consensus or by discussing with a third person. Data were extracted into a Microsoft Excel spreadsheet independently by JF, EG, GM, SL and AH. These researchers jointly reviewed the extracted data and all studies were double extracted by DNB. Data were extracted on characteristics of trial participants, type and nature of interventions (including content, duration, frequency, provider, setting), type of outcome measure as well as information relating to the interventions itself. We used the Template for Intervention Description and Replication (TIDieR) checklist to ascertain how interventions are reported in the included studies (Hoffman et al., 2014). One researcher completed the checklist (DNB) and it was checked by another (JF).

Quality assessment

The relevant screening tools from Critical Appraisal Skills Programme were used by one researcher (CG) and checked by another (DNB) (MKPC Trust, 2002). High risk of bias was recorded if 'no' or 'unsure' was recorded for six or more of the 11 questions on the tool. Medium risk of bias was assigned if 'no' or 'unsure' was recorded for 4-5 questions and low risk for 1-3 questions (Table 3).

Data synthesis

We grouped intervention content into two categories. The first was short interventions that were categorised as brief interventions and included up to three sessions. The second was extended brief interventions delivered over a longer number of sessions.

RESULTS

The search yielded 10,298 papers, of which 28 papers were fully assessed for eligibility (Figure 1). Eleven papers from nine studies were included in the final analysis (Baldwin et al., 1991, Begun et al., 2011, Bowes et al., 2012, Chance et al., 1990, Davis et al., 2003, Peters et al., 1993, Stein et al., 2011a, Stein et al., 2011b, Stein et al., 2010, Owens and McCrady, 2016, Bowes et al., 2014) (Table 1 and Table 2). Seven of the included studies were from the USA (Begun et al., 2011, Chance et al., 1990, Davis et al., 2003, Peters et al., 1993, Stein et al., 2011a, Stein et al., 2010, Stein et al., 2011b, Owens and McCrady, 2016) and two from the UK (Baldwin et al., 1991, Bowes et al., 2012, Bowes et al., 2014). The included studies consisted of 2,435 participants (range 27-729). Most of the studies included either all male participants (Baldwin et al., 1991, Bowes et al., 2014, Bowes et al., 2012, Chance et al., 1990, Owens and McCrady, 2016) or majority male (Davis et al., 2003, Peters et al., 1993, Stein et al., 2011a, Stein et al., 2011b). Only two of the included studies examined women only (Begun et al., 2011, Stein et al., 2010). Because of the heterogeneity of the studies meta-analysis was not possible.

FIGURE ONE HERE

TABLE 1 HERE

TABLE 2 HERE

TABLE 3 HERE

Screening for inclusion for five of the included studies was carried out by researchers (Begun et al., 2011, Davis et al., 2003, Stein et al., 2011b, Stein et al., 2011a, Stein et al., 2010, Owens

and McCrady, 2016); one by social workers (Baldwin et al., 1991) and one by program counsellors (Peters et al., 1993). Two studies did not include this information (Bowes et al., 2014, Bowes et al., 2012, Chance et al., 1990). A range of tools was used to screen participants into studies. Two studies used the Alcohol Use Disorders Identification Test (AUDIT)(Babor et al., 2001) screening tool to screen for risky drinking (Begun et al., 2011, Stein et al., 2010); one used the ASSIST (Owens and McCrady, 2016); one used the Alcohol-Related Aggression Questionnaire (Bowes et al., 2014, Bowes et al., 2012, McMurran and Baldwin, 2006); one the Form 90 alcohol tool (Davis et al., 2003); one the Addiction Severity Index (Peters et al., 1993); one the risks and consequences of drinking questionnaire (Stein et al., 2010, Stein et al., 2011a, Stein et al., 2011b); one used the question 'more than half of their total offences being drink related' (Baldwin et al., 1991) and one did not give this information (Chance et al., 1990).

Brief interventions

Five studies (six papers) from the USA examined the efficacy of brief interventions for incarcerated participants (Begun et al., 2011, Davis et al., 2003, Stein et al., 2011a, Stein et al., 2011b, Stein et al., 2010, Owens and McCrady, 2016). The length of the brief interventions ranged from 45 to 150 minutes (Begun et al., 2011, Davis et al., 2003, Stein et al., 2011a, Stein et al., 2011b, Stein et al., 2010, Owens and McCrady, 2016). One study (two papers) was from the same authors and included relaxation training as the control condition (Stein et al., 2011a, Stein et al., 2011b, Stein et al., 2010). One study included educational videos as the control condition (Owens and McCrady, 2016). The other studies all included treatment as usual as the control condition (Begun et al., 2011, Davis et al., 2003, Stein et al., 2010). Studies did not give information on what treatment as usual was. Four of the studies were conducted with adults (Begun et al., 2011, Davis et al., 2003, Stein et al., 2010, Owens and McCrady, 2016)

and one study with juveniles (Stein et al., 2011a, Stein et al., 2011b) (Table 1). In terms of quality assessment, one of the studies was classified as having a low risk of bias (Stein et al., 2010), three as medium risk of bias (Begun et al., 2011, Stein et al., 2011b, Stein et al., 2011a, Owens and McCrady, 2016) and one as having a high risk of bias (Davis et al., 2003) (Table 3).

The five studies all used different outcome measures (Table 2), meaning results were unable to be synthesised by meta-analysis, yet despite this, some significant results were found. Davis et al (2003) found that those that were given a brief intervention were significantly more likely to schedule follow up appointments for treatment (66.7 vs. 40.5%; χ^2 5.01, $p=0.025$) (Davis et al., 2003). Stein et al (2010) found that those in the intervention group had reported significantly more days abstinent at follow-up (OR=1.96) (Stein et al., 2010). Begun et al (2011) found that for the intervention group the mean reduction in AUDIT score from baseline to follow-up were greater in the intervention group ($F(1,148)=6.336$, $p\leq 0.001$) (Begun et al., 2011). The Stein et al (2011) study found no significant results related to alcohol (Stein et al., 2011b, Stein et al., 2011a). Owens et al (2016) was a feasibility study and although they found the study to be feasible they did not find any significant differences between groups; however, the sample size was very small.

Extended brief interventions

Four studies (five papers) examined the efficacy of alcohol interventions with adults in the prison system using extended brief interventions (Baldwin et al., 1991, Bowes et al., 2014, Bowes et al., 2012, Chance et al., 1990, Peters et al., 1993). Two of the studies were from the USA (Chance et al., 1990, Peters et al., 1993) and two from the UK (Baldwin et al., 1991, Bowes et al., 2014, Bowes et al., 2012). The interventions lasted from six sessions to 18 months in

duration (no actual times given). Three of the studies were conducted with adults (Bowes et al., 2014, Bowes et al., 2012, Chance et al., 1990, Peters et al., 1993) and one study with juveniles (Baldwin et al., 1991) (Table 1). In terms of quality assessment, one of the studies was classified as having a medium risk of bias (Bowes et al., 2014, Bowes et al., 2012) whilst three had a high risk of bias (Baldwin et al., 1991, Chance et al., 1990, Peters et al., 1993) (Table 3).

The four studies all used different outcome measures (Table 2) meaning results were unable to be synthesised. Chance et al (1990) found no significant results related to alcohol (Chance et al., 1990).

Baldwin et al (1991) found that the control group increased average number of alcohol units per week compared to the intervention group $F(1,19)=4.546$ ($p<0.05$); The control group also increased average alcohol units per drinking session compared to the intervention group $F(1,19)=6.753$ ($p<0.05$). In comparison the intervention group reduced the average number of offences against property compared to the control group $F(1,13)=6.489$ ($p<0.05$) (Baldwin et al., 1991).

Peters et al (1993) found that those that were randomised to the intervention group had a significantly longer time period before being arrested again $t(418)=3.0$ $p<0.01$, significantly fewer arrests $t(418)=2.7$ $p<0.01$, and served significantly less jail time $t(418)=2.4$ $p<0.05$ compared to the control group (Peters et al., 1993).

Bowes et al (2012) found significantly lower scores for individuals in the intervention group compared to the control in relation to alcohol related aggression ($p < 0.05$) as well as the different components of the Controlled Drinking Self-Efficacy Tool and the State-Trait Anger Expression Inventory (Bowes et al., 2012) (Table 2). However, a follow-up study by the same authors found no statistically significant differences in relation to recidivism (Bowes et al., 2014).

TIDieR results

Results relating to how interventions were described are shown in Tables 3 and 4 using the TIDieR checklist (Hoffman et al., 2014). We found that for some categories detailed information was not given in the included papers.

TIDieR results - brief interventions

All included studies described the brief intervention as being based on the motivational interviewing work of Miller and Rollnick (2012) (Miller and Rollnick, 2002) with all papers giving some indication of what the components in the interventions were (Davis et al., 2003, Stein et al., 2010). All studies reported that interventions were given one-to-one and were based on the results of clients' individual screenings (Begun et al., 2011, Davis et al., 2003, Stein et al., 2011a, Stein et al., 2011b, Stein et al., 2010, Owens and McCrady, 2016). All studies were delivered by trained research staff, which calls into question how pragmatic the studies are and whether they could be implemented with fidelity in real life situations by existing program staff.

None of the included studies gave information about modifications during the study and only two gave information related to fidelity (Stein et al., 2011a, Stein et al., 2011b), with one giving in-depth information (Stein et al., 2010).

TABLE 4 HERE

TIDieR results – extended brief interventions

The four studies involving extended brief interventions were very different in content from the brief intervention studies (Baldwin et al., 1991, Bowes et al., 2014, Bowes et al., 2012, Chance et al., 1990, Peters et al., 1993). Intervention details in these studies were sparse, meaning that they would be unable to be replicated. The total amount of time spent in intervention varied in length from a total of 12 hours (Baldwin et al., 1991) to 20 hours (Bowes et al., 2014, Bowes et al., 2012) to 54 hours (Peters et al., 1993). The remaining study stated that the time frame was 6-18 months but did not say how many sessions (Chance et al., 1990). Very little detail was provided about the information given during or as part of the intervention. According to the checklist authors, this is the question that is least likely to be answered (Hoffman et al., 2014).

None of the included studies gave any information relating to where in the prison the interventions took place or of any fidelity checks. However, unlike the brief intervention studies, all of the extended brief interventions were delivered by trained individuals employed within the services.

TABLE 5 HERE

DISCUSSION

This systematic review examined the efficacy and effectiveness of alcohol interventions for incarcerated individuals. Results show that it is possible to carry out randomised controlled trials in this setting and that there is some promise in terms of effects. However, this study has shown that, to date, not enough studies have been carried out to ascertain efficacy or effectiveness and some are of very poor quality. Moreover, there is a distinct lack of information relating to female prisoners. Yet this should not discourage researchers: the signs are that there is a place for interventions in this setting and they do hold promise, but more robust studies are needed with consistent outcomes.

This study, like others, has shown that interventions for offenders that tackle risky drinking issues are under-developed and under-researched (Bowes et al., 2014, Newbury-Birch et al., 2016b). It has also been shown that it is very difficult to conduct research studies in this setting, primarily due to the difficulties in collecting self-report follow-up data (Newbury-Birch et al., 2016b). One of the fundamental issues is that studies include different measurement tools and outcomes, with outcomes decided upon based on the research funding. A piece of work is currently taking place that aims to develop a Core Outcome Set for Alcohol Brief Interventions to improve the measurement of alcohol-related change: Outcome Reporting in Brief Intervention Trials: Alcohol (ORBITAL) (Shorter et al., 2018).

Furthermore, our results showed that interventions are not being described as coherently as they could be and this is something that needs developing in future studies. The introduction of the TIDiER checklist (Hoffman et al., 2014) and the expectation that it will be used when

describing studies is a step forward; however, this study shows that, to date, there is limited information relating to intervention content and delivery in this body of research.

It is often thought that prisoners feel coerced into taking part in research projects; however, evidence tells us that participants do not feel coerced if the project is explained properly (Sherman et al., 2015). Although, research tells us that obtaining follow-up data with this population is fraught with difficulties because of the sometimes chaotic lifestyles of the participants (Newbury-Birch et al., 2016b). More work is needed into how we can use routinely collected data in criminal justice studies. For instance, a recent study carried out by researchers in the UK in the probation setting used reconviction data to follow up individuals using Police National Computer identifiers and followed-up 97% of participants (Newbury-Birch et al., 2014).

In order for research to be applicable to the prison setting it is imperative that staff and inmates be involved in determining the research question and study outcomes and process (Newbury-Birch et al., 2016a). By working together and drawing on each party's knowledge and experience, it is possible to translate the results of research into real world practice (Sherman et al., 2015). For example, researchers in the UK have recently undertaken an ABI intervention development study for male remand prisoners. As part of this, they have conducted in-depth interviews and focus groups with prisoners and prison staff/key stakeholders to develop not only the research process but also the type and nature of the ABI intervention (Holloway et al., 2017).

There are several additional limitations to this study. The majority of the studies were carried out in the USA and there was a lack of data relating to women. In addition, we were unable to carry out a meta-analysis to quantitatively assess program outcomes because of the variability in outcome measures used in the studies. However, this review shows that it is feasible to carry out alcohol interventions for incarcerated individuals. More work is needed to clarify what exactly the outcomes of interest are to the justice agencies we work with, and a core outcome set related to the field, developed in collaboration with these agencies and the individuals they serve, will be of use.

Despite these recent developments the question remains: are we carrying out research projects for incarcerated individuals who are risky drinkers in the correct way? Research studies in the criminal justice system are by their very nature complex and context-specific. Public health and criminal justice agencies have long been perceived as having entirely different approaches to dealing with alcohol issues (Shepherd and Sumner, 2017). In order to advance research and program development there needs to be more collaborative work and commissioning of services and evaluations (Newbury-Birch et al., 2016a, Newbury-Birch et al., 2016b). It has been argued that, in terms of informing policy, there tends to be an over-reliance on evidence from tightly controlled intervention trials which often lead to questions around the applicability of research in the real world (Pettman et al., 2012). The evidence to date, although limited does seem to be showing an effect. However, we are still at the stage where we need robust efficacy/effectiveness studies to prove whether the interventions do in fact work.

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CONFLICT OF INTEREST

No conflict declared.

CONTRIBUTORS

Professor Newbury-Birch and Professor Aisha Holloway conceptualized the study, interpreted the results and critically reviewed the article. Dr Giles, Ms Ferguson and Dr McGeechan carried out the initial searches and with Professor Newbury-Birch, Dr Landale, Dr Stockdale and Dr Gill screened articles, extracted data. Professor Newbury-Birch and Ms Ferguson carried out quality assessment. All authors critically revised the manuscript and approved the final version for submission. All authors have agreed to be accountable for all aspects of the work.

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